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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR		ATTORNEY DOCKET NO.
08/879,467	06/20/97	DURBIN	D	DN38240R1

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EXAMINER	
CHEN,W	
ART UNIT	PAPER NUMBER
2724	12

DATE MAILED: 11/16/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/879,467	Durbin et al.
Examiner	**Group Art Unit**
Wenpeng Chen	2724

☒ Responsive to communication(s) filed on *Sep 20, 1999*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-18* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-18* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Continued Prosecution Application

1. The request filed on 9/20/1999 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08/879,467 is acceptable and a CPA has been established. An action on the CPA follows.

Examiner's responses to Applicant's remark

2. Applicants' arguments, filed with the CPA, with respect to the pending claims are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There are insufficient antecedent bases for the following limitations.

-- Claim 16 recites, in lines 1-2, the limitation "the host processing circuit" which has insufficient antecedent basis, because the "a host processing circuit" in Claim 15 was changed to "a processing circuit" in the amendment.

-- Claim 17 recites the limitation "the host processing circuit" in lines 2-3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 5, 8-9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tymes (US patent 5,157,687) in view of Metlitsky et al. (US patent 5,545,886.)

a. With regard to Claims 1-3 and 5, Tymes teaches a coded image capture and decoding system comprising:

-- a capture system comprising (Fig. 4 remote unit 15):

- an optical system that captures image data from coded targets; (Fig 5; column 11, lines 4-53)

- a first processing circuit, coupled to the optical system, that generates a plurality of images based on image data received from the optical system; (column 5, lines 19-30; column 11, lines 4-53; CPU 40; For example, many images are generated at a checkout counter.)

- an image buffer, coupled to the first processing circuit, that stores the plurality of images generated by the first processing circuit; (column 11, lines 4-53; memory 41)

-- a host system comprising (base station 13 in Fig. 3):

- a non-dedicated second processing circuit, for coupling to the image buffer, that, at least after each of the plurality of images is stored in the image buffer and after a request by the capture system, attempts decoding processing of the plurality of images. (column 11, lines 53-63; CPU 30 is not a dedicated processing circuit.)

b. With regard to Claims 8-9 and 13, Tymes teaches a coded image capture and decoding system comprising:

-- a remote capture unit comprising (Fig. 4 remote unit 15):

- an image processing circuit that generates a plurality of images; (column 5, lines 19-30; column 11, lines 4-53; CPU 40; For example, many images are generated at a checkout counter.)

- an optical system operably to the image processing circuit, wherein the optical system reads a target to produce image data and transfers the image data to the image processing circuit; (Fig 5; column 11, lines 4-53)

- an image buffer, coupled to the image processing circuit, that stores the plurality of images generated by the image processing circuit; (column 11, lines 4-53; memory 41)

-- a host unit comprising (base station 13 in Fig. 3):

- a processing circuit that decodes processing of coded images; (column 11, lines 53-63; CPU 30 is not a dedicated processing circuit.)

- interface circuitry that assists in delivering the coded images to the processing circuit from the remote capture unit for decoding at least after each of the plurality of images is stored in the image buffer. (column 11, lines 5-63; the RF link)

c. However, Tymes does not explicitly teach that (1) decoding processing and transmission of data are requested after the plurality of images are stored in the memory of the capture system, (2) the number of the plurality of images is predetermined, and (3) a composite image is formed from the images as required.

d. Metlitsky teaches:

-- capturing a plurality of images from a target by multiple scans; (column 11, lines 41-52; Each scan generates an image.)

-- wherein the number of the images is predetermined; (column 9, lines 26-36)

-- constructing a composite image from the captured images. (column 11, lines 41-52.)

e. It is desired to enhance reliability of decoding of a bar code. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Metlitsky's teaching to capture and store a predetermined number of images derived from a target using

Tymes's remote capture unit and deliver the image to Tymes's host system to form a composite image for decoding, the combination enhances reliability of decoding of the bar codes.

6. Claims 1, 5, 8-9, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tymes (US patent 5,157,687) in view of Shreesha (US patent 5,798,516.)

a. With regard to Claims 1 and 5, Tymes teaches a coded image capture and decoding system comprising:

-- a capture system comprising (Fig. 4 remote unit 15):

- an optical system that captures image data from coded targets; (Fig 5; column 11, lines 4-53)

- a first processing circuit, coupled to the optical system, that generates a plurality of images based on image data received from the optical system; (column 5, lines 19-30; column 11, lines 4-53; CPU 40; For example, many images are generated at a checkout counter.)

- wherein the first processing circuit converts the image data into a plurality of transition points; (column 11, lines 4-30)

- an image buffer, coupled to the first processing circuit, that stores the plurality of images generated by the first processing circuit; (column 11, lines 4-53; memory 41)

-- a host system comprising (base station 13 in Fig. 3):

- a non-dedicated second processing circuit, for coupling to the image buffer, that, at least after each of the plurality of images is stored in the image buffer and after a request by the capture system, attempts decoding processing of the plurality of images. (column 11, lines 53-63; CPU 30 is not a dedicated processing circuit.)

b. With regard to Claims 8-9 and 14, Tymes teaches a coded image capture and decoding system comprising:

-- a remote capture unit comprising (Fig. 4 remote unit 15):

- an image processing circuit that generates a plurality of images; (column 5, lines 19-30; column 11, lines 4-53; CPU 40; For example, many images are generated at a checkout counter.)

- an optical system operably to the image processing circuit, wherein the optical system reads a target to produce image data and transfers the image data to the image processing circuit; (Fig 5; column 11, lines 4-53)

- wherein at least one of the coded images comprises a plurality of values, each represents a transition point in the image; (column 11, lines 4-30)

- an image buffer, coupled to the image processing circuit, that stores the plurality of images generated by the image processing circuit; (column 11, lines 4-53; memory 41)

-- a host unit comprising (base station 13 in Fig. 3):

- a processing circuit that decodes processing of coded images; (column 11, lines 53-63; CPU 30 is not a dedicated processing circuit.)

- interface circuitry that assists in delivering the coded images to the processing circuit from the remote capture unit for decoding at least after each of the plurality of images is stored in the image buffer. (column 11, lines 5-63; the RF link)

c. With regard to Claims 15-18, Tymes teaches a coded image capture and decoding system comprising:

-- a remote capture unit comprising (Fig. 4 remote unit 15):

- an image buffer that stores the plurality of images; (column 11, lines 4-53; memory 41)

-- a host image processing unit, operably coupled to the remote capture unit, comprising (base station 13 in Fig. 3):

- a processing circuit; (column 11, lines 53-63; the part of circuit in CPU 30 responsive for decoding)

- code processing circuitry, communicatively coupled to the processing circuit, selectively directing the processing circuit to decode the plurality of coded images; (column 6, line 63 to column 7, line 8; column 11, lines 43-59; The combination of adapter 33 and antenna 35 forms the circuitry)

- wherein the processing circuit selectively responds to the code processing circuitry to control the time at which decode processing will be performed; (column 11, lines 43-63)

- interface circuitry that assists in delivering the coded images to the processing circuit for decoding at least after each of the plurality of images is stored in the image buffer; (column 11, lines 5-63; the RF link)

- the interface circuitry utilizes wireless transmissions. (column 11, lines 5-63; the RF link)

d. However, Tymes does not explicitly teach storing and decoding a plurality of images representative of a coded target as recited.

e. Shreesha teaches to use a scanner to capture a plurality of images representative of a coded target for decoding. (Column 4, lines 24-65)

f. It is desired to decode a bar code efficiently with a CCD scanner. As pointed out by Shreesha, this can be done by capturing pictures of a bar code at several points near a focussed condition to gain an image having a excellent image quality . It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Shreesha's teaching to capture a

batch of images, store them, and process them in the system taught by Tymes, because the combination improves decoding efficiency of bar codes with a CCD scanner.

7. Claims 4, 6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tymes in view of Shreesha as applied to claims 1 and 8 above, and further in view of Grodevant (US patent 5,260,554.)

Tymes in view of Shreesha teaches the parent claims 1 and 8. However, it does not teach using proximity screening as recited in the claims.

Grodevant teaches:

-- performing proximity screening of image data from the optical system and initiates a capturing cycle. (column 4, lines 31-66)

It is desired to be able to initiate decoding of a bar code automatically. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Grodevant's proximity screening to initiate image capturing of bar codes for decoding to achieve automatic examination of bar codes on objects taught by Tymes in view of Shreesha, because the combination improves efficiency of bar-code reading.

8. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tymes in view of Shreesha as applied to claims 1 and 8 above, and further in view of Park (US patent 5,675,424 listed in paper #4.)

Tymes in view of Shreesha teaches the parent claims 1 and 8. However, Tymes in view of Shreesha does not teach parallel decoding and generating differences between the images as recited.

Park teaches the MPEG compression method. (Abstract) The MPEG method is the most useful method for compressing a sequence of images. In the method, the first image is used as a reference and the differences between the reference and its subsequent images are derived. Both the reference and the differences are coded.

It is desired to transfer data in an efficient compressed form to gain transmission speed. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply MPEG compression method to compress the images generated in the remote unit and transmit the compressed images to the host unit taught by Tymes in view of Shreesha, because the combination provides an efficient data storage and transmission.

Park further teaches a parallel decoding method. (Fig. 4; column 3, lines 14-39)

It is also desired to be able to use a low-speed decoder as well as high speed decoder to decode bar codes and images. As taught by Park, decoding in parallel with a set of decoders can speed up its overall decoding speed. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to use parallel decoding taught by Park in the system taught by Tymes in view of Shreesha to decode bar codes, because the combination expands the capability of the system by increasing process speed or allowing the use of low-speed processors.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tymes in view of Shreesha and Park as applied to claim 10 above, and further in view of Grodevant.

Tymes in view of Shreesha and Park teaches the parent claim 10. However, it does not teach using a proximity detector as recited in the claims.

Grodevant teaches:

-- a proximity detector that enables operation of the capture and decoding system whenever a target is detected. (column 4, lines 31-66)

It is desired to be able to initiate decoding of a bar code automatically. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Grodevant's proximity detector to initiate image capturing of bar codes for decoding to achieve automatic examination of bar codes on objects taught by Tymes in view of Shreesha and Park, because the combination improves efficiency of bar-code reading.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is (703) 306-2796.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

The art unit fax number is (703) 306-5406.

Wenpeng Chen

WENPENG CHEN
PATENT EXAMINER

November 6, 1999